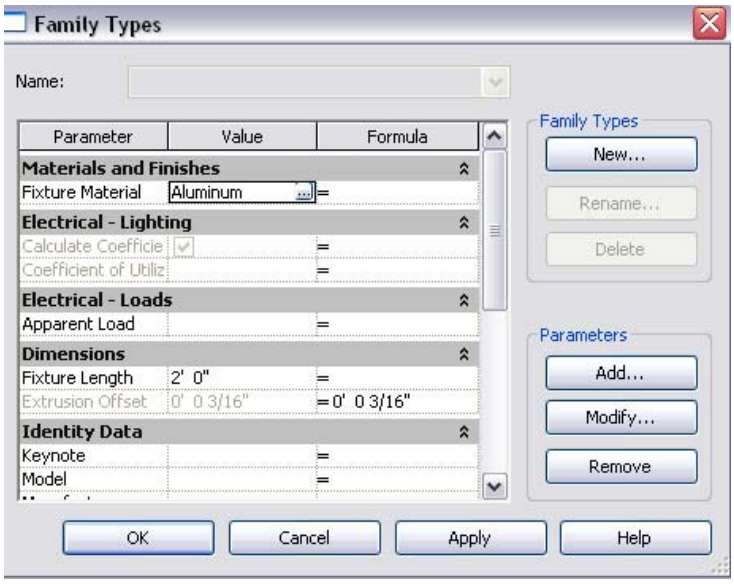
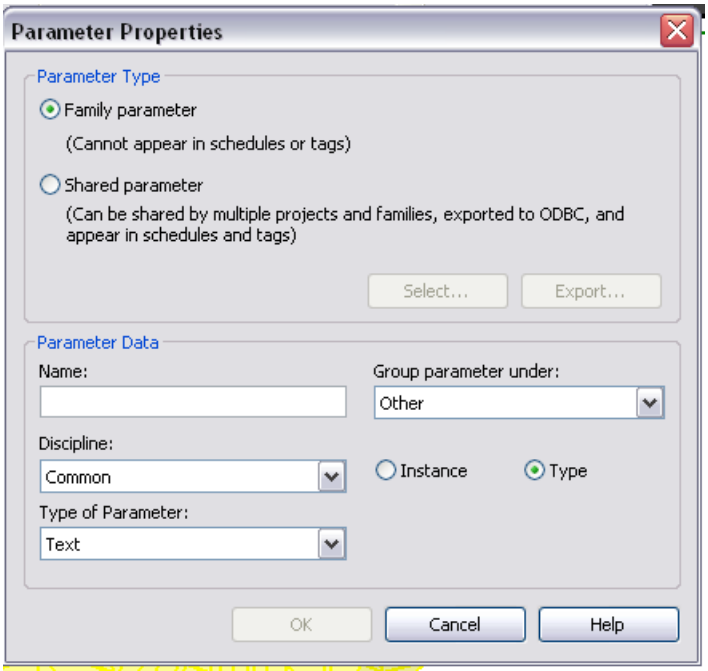
Creating and Adding Custom Parameters

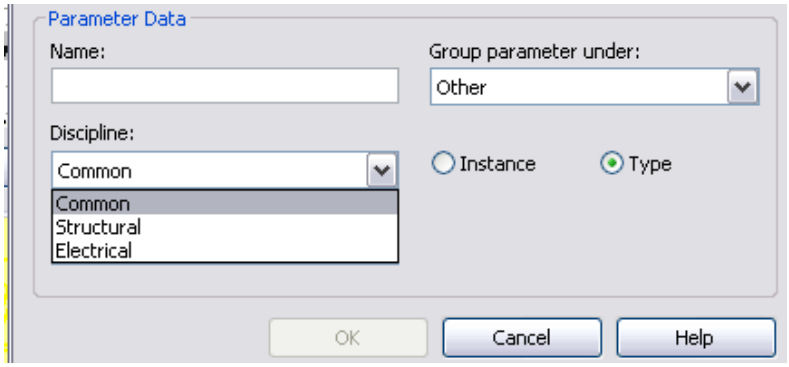
Parameters are the heart of Revit. They provide the basic constraints and properties of all object components called families. Parameters for any family can be created, added, and modulated to create family types. When creating a new family one will be prompted to specify a family template file. This step is required. Each template comes with preset parameters that may or may not be useful to all applications, but they are there and cannot be deleted or modified. These can be seen by clicking on the “Types” button in the “Create” toolbar. This dialogue is the information part of the family. This tutorial will use a ceiling hosted lighting fixture as an example for all scenarios.



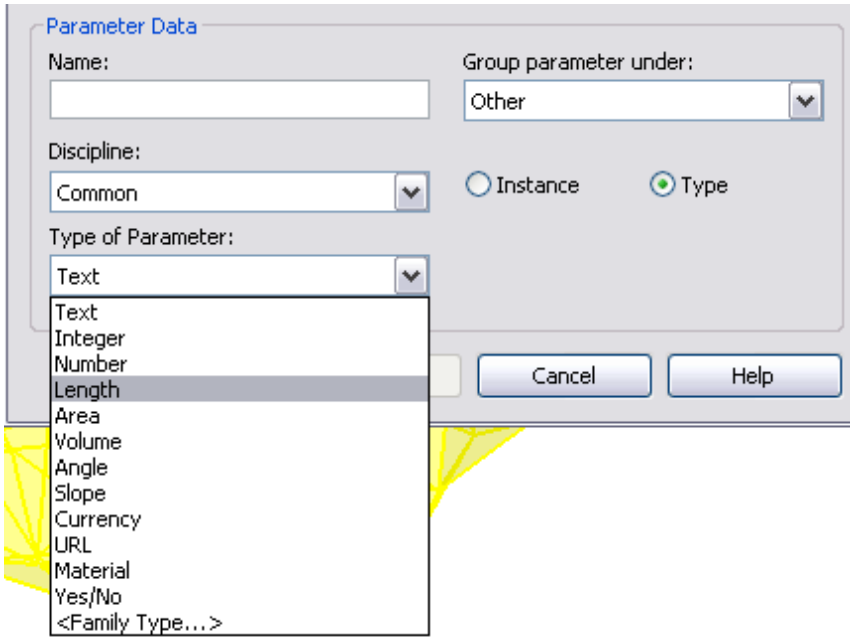
From here we can also create and edit our own custom parameters. To do this click the “Add” button under “Parameters.” The Parameter Properties dialogue will appear.



At this point we have some options as the definition of the parameter. Primarily one should be concerned with what type of parameter it will be. We have the option of either family or shared parameters. Family Parameters can only be accessed from within the Family in which they are created. Shared parameters are more powerful and allow us to share their data between families and also have it automatically populate schedules and tags. Most parameters should be family parameters. Shared Parameters are beyond the scope of this tutorial. Here, one has the opportunity to name the parameter and define a discipline. There are only three disciplines to choose from normally, but this can change depending on what template is open or which Revit Software is being used. The normal disciplines that show are: common, electrical, and structural. These all have different Parameter types associated with them. This tutorial will focus on the common discipline.



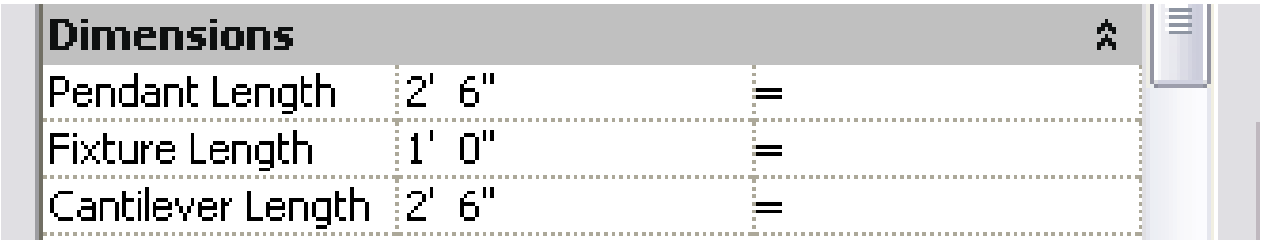
The next item to choose is the parameter type associated with the new parameter. Parameter Types will be explained in the next section.



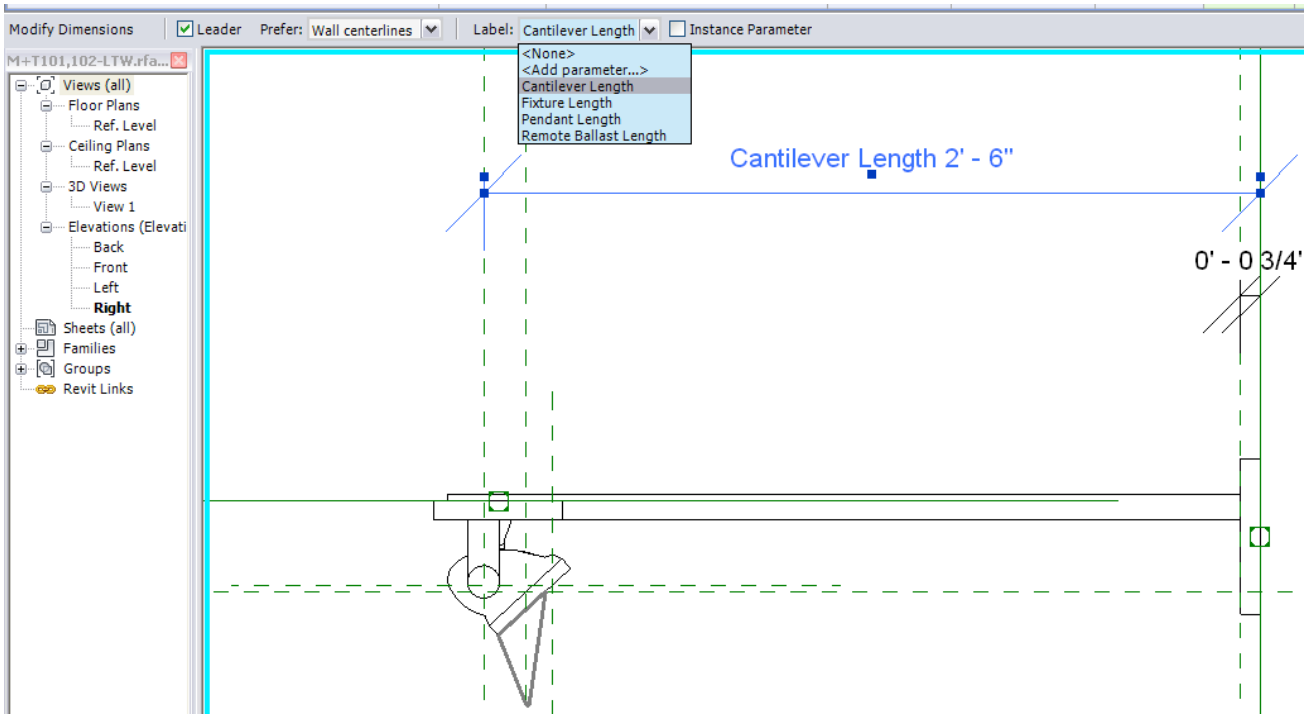
The last option in the Parameter Properties dialog is the “Group Parameter Under” option in which the user can select a group relevant to the new parameter in an effort to sort multiple parameters efficiently in the family types dialog.

Parameter Types

When choosing the correct family types there are a couple of things to think about. For example: What property is it pertaining to? Is this parameter going to control or constrain anything in the model? Do I want to limit what is included in this parameter? For example, the “Length” type, when selected, will show only a length value in its value field, its default is 0’-0”.



This parameter can be added to a dimension line in the model that can control the length of a model component. To do this, select the dimension. A modify dimensions toolbar will appear. Click Label to link the new length parameter to the dimension. When the value is changed in the “Types” dialogue it will change it accordingly in the model. This dimension can be locked to reference lines to add length constraints to modulate a length of an extrusion for example.



This value will never be able to be substituted with normal text or anything besides a length. If a text field is needed for comments then choose “text” as the parameter type. There are others like “number” or “integer” that will also limit the input values. “Material” is one type that is used a lot and is unique from all the other types. If we select this type, “<By Category>” will appear as the field value. When we click inside the field a small grey box appears on the right side. If we click on that box the material properties dialogue will appear and we then have the opportunity to specify or create our own material.

We can then connect this parameter to individual objects in the family, like extrusions by entering into the element properties of that object or a selected group of objects, like extrusions, and clicking on the small grey box farthest on the right side of the value field under the material parameter.

When the parameter is linked two parallel lines will fill the box indicating the link has been made, and the value field is then grayed out.

We can then select the material parameter we had just created and the object will change materials based on the material value specified in the types dialogue. Linking Parameters like length and materials can be useful for creating family types. On another note we can simply change the material for any single object in its respective element properties without linking a material parameter to it and it will not be able to be change anywhere, but in the family edit. If only one family type is needed this may be more efficient and parameter links may not be needed.

I hope this gives the user a head start to creating and applying custom parameters. In applying links between parameters and model components in the family a more full understanding must be had for how a family is built in general.